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FACSIMILE TRANSMISSION

September 8, 2003

TO : Patent and Trademark Office

ATTN: Jose Dees

FAX NO.: 703-305-1034

TELEPHONE: 703-308-4628

FROM: John H. Stowe

RE: LOST PATENT FILE U.S. Patent

Attached are the following:

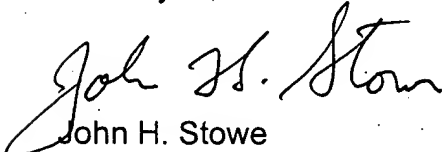
Letter to the Examiner (2 pgs.)

Claims in original application as filed, being claims 1-10 as shown on pages 37-41 of the original application. (5 pgs.)

Amendment filed April 9, 1997, adding claims 11-20 and intending to cancel claims 1-10. (12 pgs.)

Copy of the Notice of Allowance and Issue Fee Due from original application file. (4 pgs.)

Thank you,


John H. Stowe

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on September 8, 2003
By: Manana Tng
Date 9-8-03

Total Pages Including Cover Sheet: 24

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Line 2 : +
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To : 917033051034
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September 8, 2003

TO : Patent and Trademark Office
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FAX NO.: 703-305-1034
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RE: LOST PATENT FILE U.S. Patent

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Attached are the following:

- Letter to the Examiner (2 pgs.)
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- Copy of the Notice of Allowance and Issue Fee Due from original application file. (4 pgs.)

Thank you,

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By: STAAS & HALSEY
Date: 9-8-03

Total Pages Including Cover Sheet: 24

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Kouichi MATSUDA et al.

Serial No. 09/548,213

Group Art Unit: 2838

Confirmation No.

Filed: April 12, 2000

Examiner: DEES, Jose

For: CONTROL SYSTEM FOR CHARGING BATTERIES AND ELECTRONIC APPARATUS
USING SAME

**LETTER TO THE EXAMINER PROVIDING REQUESTED PAPERS
FROM PARENT APPLICATION**

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to telephone inquiry by the above named Examiner on September 8, 2003. The Examiner stated that the file for the parent application could not presently be located and requested certain papers from the original application ser. no. 08/578,805, from which U.S. Patent 5,739,667, issued be provided for reference by the USPTO.

The following papers were requested and are provided herewith:

Claims in original application as filed, being claims 1-10 as shown on pages 37-41 of the original application.

Amendment filed April 9, 1997, adding claims 11-20 and intending to cancel claims 1-10.

Although not requested by the Examiner, a copy of the Notice of Allowance and Issue Fee Due is also provided. This paper is included because the attached notice of allowability includes an Examiner's amendment officially canceling claims 1-10.

If any other papers from the parent application file are required, please contact the undersigned.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 9/8/03

By: John H. Stowe

John H. Stowe
Registration No. 32,863

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on September 8, 2003
STAAS & HALSEY
By Manani
9-8-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Kouichi MATSUDA et al.

Serial No. 08/578,805

Filed: December 26, 1995

Group Art Unit: 2111

Examiner: K. Shin

For: CONTROL SYSTEM FOR CHARGING BATTERIES AND ELECTRONIC
APPARATUS USING SAME

AMENDMENT

Assistant Commissioner
for Patents
Washington, D.C. 20231

Sir:

This is in response to the Office Action mailed January 9, 1997, and having a period for response set to expire on April 9, 1997. The following amendments and remarks are respectfully submitted.

IN THE SPECIFICATION:

Page 7, line 3, delete "rechargeable batteries".

Page 9, line 36, delete "prepared".

Page 11, line 15, change "a" to --the--.

Page 12, line 31, change "detects" to --detecting--.

Page 16, line 8, delete "from this".

IN THE CLAIMS:

Please **ADD** new claims 11-20 as follows:

--11. A system for controlling the supply of power from an external power source to rechargeable batteries in an apparatus which can be powered either by the external power source or the rechargeable batteries, comprising:

 a first detector for detecting a difference between a maximum permissible charging current allowed by the rechargeable batteries and a charging current flowing to the rechargeable batteries;

 a second detector for detecting a maximum useable current by detecting a difference between a maximum suppliable current allowed by the external power source and the current being consumed by the apparatus;

 a third detector for detecting a difference between the maximum useable current and the charging current flowing to the rechargeable batteries; and

 a controller for controlling power supplied from the external power source to the rechargeable batteries in accordance with the differences detected by the first and third detectors so that the charging current flowing to the rechargeable batteries does not exceed the maximum permissible charging current and does not exceed the maximum useable current.--

--12. A system for controlling as set forth in claim 11, further comprising a fourth detector for detecting a difference between a maximum permissible supply voltage allowed

by said rechargeable batteries and a voltage applied to said rechargeable batteries, said control means controlling the power supplied from the external power source to the rechargeable batteries in accordance with the difference detected by the fourth detector so that the voltage applied to the rechargeable batteries does not exceed the maximum permissible supply voltage.--

--13. A system for controlling the supply of power from an external power source to rechargeable batteries in an apparatus which can be powered by either the external power source or the rechargeable batteries, comprising:

a first detector for detecting a difference between a maximum permissible charging current allowed by the rechargeable batteries and a charging current flowing to the rechargeable batteries;

a second detector for detecting a difference between a lowest permissible output voltage allowed by the external power source and an output voltage which is being output by the external power source; and

a controller for controlling power supplied from the external power source to the rechargeable batteries in accordance with the differences detected by the first and second detectors so that the charging current flowing to the rechargeable batteries does not exceed the maximum permissible charging current and the output voltage being output by the external power source is not less than the lowest permissible output voltage.--

--14. A control system for controlling as set forth in claim 13, further comprising a third detector for detecting a difference between the maximum permissible supply voltage allowed by the rechargeable batteries and a voltage applied to said rechargeable batteries, said control means controlling the power supplied from the external power source to the rechargeable batteries in accordance with the difference detected by the third detector so that the voltage applied to the rechargeable batteries does not exceed the maximum permissible supply voltage.--

--15. A system for controlling as set forth in claim 11,
wherein said controller controls the power supplied from the external power source to the rechargeable batteries by determining if either the first or third detector detects a negative difference thus indicating that the charging current exceeds a maximum,

wherein if either of the first or third detector detects a negative difference, the controller selects the largest negative difference and controls the charging current to increase the largest negative difference to a zero difference, and

wherein if neither of the first or third detector detects a negative difference, the controller selects the largest positive difference and controls the charging current to decrease the largest positive difference to a zero difference.--

--16. A system for controlling as set forth in claim 12,

wherein said controller controls the power supplied from the external power source to the rechargeable batteries by determining if any of the first, third or fourth detector detects a negative difference thus indicating that the charging current or the supply voltage exceeds a maximum,

wherein if any of the first, third or fourth detector detects a negative difference, the controller selects the largest negative difference and controls the charging current to increase the largest negative difference to a zero difference, and

wherein if none of the first, third or fourth detector detects a negative difference, the controller selects the largest positive difference and controls the charging current to decrease the largest positive difference to a zero difference.--

--17. A system for controlling as set forth in claim 13,

wherein said controller controls the power supplied from the external power source to the rechargeable batteries by determining if either of the detector detects a negative difference thus indicating that the charging current exceeds a maximum or the output voltage is less than a minimum,

wherein if either of the detector detects a negative difference, the controller selects the largest negative difference and controls the charging current to increase the largest negative difference to a zero difference, and

wherein if neither of the detector detects a negative difference, the controller selects the largest positive difference and controls the charging current to decrease the largest positive difference to a zero difference.--

--18. A system for controlling as set forth in claim 14,

wherein said controller controls the power supplied from the external power source to the rechargeable batteries by determining if any of the detector detects a negative difference thus indicating that a current or a voltage is greater than a maximum or less than a minimum,

wherein if any of the detector detects a negative difference, the controller selects the largest negative difference and controls the charging current to increase the largest negative difference to a zero difference, and

wherein if none of the detector detects a negative difference, the controller selects the largest positive difference and controls the charging current to decrease the largest positive difference to a zero difference.--

--19. A system for controlling the supply of power from a charger circuit to rechargeable batteries, the rechargeable batteries being used to supply power to a power supply circuit, comprising:

a sense resistor having two ends, located between the rechargeable batteries and a connection point for the charger circuit and the power supply circuit, the sense resistor detecting current flowing into and out of the rechargeable batteries;

a current measurement device having two inputs connected respectively to the two ends of the sense resistor, the current measurement device determining which of the two inputs has a larger voltage and generating a voltage in accordance with the difference between the voltages of the two inputs to thereby measure the current flowing into or out of the rechargeable battery; and

a control circuit regulating to a constant current the current flowing into the rechargeable batteries, based on the current flowing into the rechargeable batteries detected by the sense resistor.--

--20. A system for controlling as set forth in claim 19, wherein the control circuit has two inputs connected respectively to the two ends of the sense resistor.--

REMARKS

In accordance with the foregoing, claims 1-10 have been cancelled and claims 11-19 have been added. Claims 11-18 correspond respectively with cancelled claims 1-8. Claims 19 and 20 correspond with cancelled claim 10. Claims 11-20 are pending and under consideration.

The Examiner asserts that Figs. 13 and 14 should be labelled as prior art. Being filed herewith is a Letter to the Examiner Requesting Approval of Changes to the Drawings in which it is formally requested that Figs. 13 and 14 be labelled as "Prior Art."

Claims 3, 4, 7 and 8 are rejected under 35 USC §112, second paragraph for indefiniteness. These claims, as well as all other claims have been carefully rewritten to more closely comply with the requirements of 35 USC §112. It is believed that the manner in which the indefiniteness rejection is addressed is self-explanatory. Withdrawal of the rejection is requested.

Claim 9 is rejected as being anticipated. The new claims do not include a claim corresponding to original claim 9. Thus, the rejection is seen as moot.

Claim 10 is rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 5,545,969 to Hasegawa. New claims 19 and 20 correspond with original claim 10.

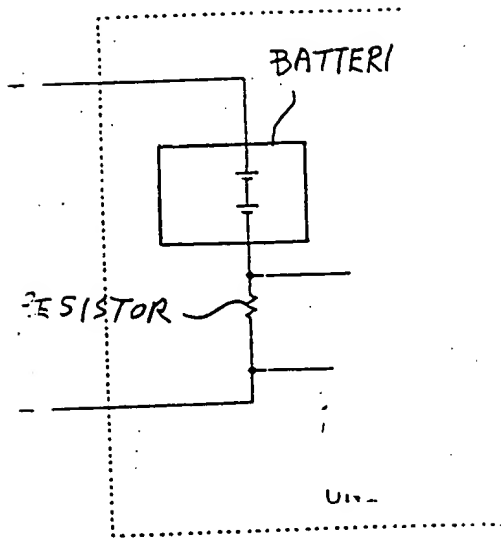
As understood by the Examiner, Hasegawa discloses a battery charging control system which is provided with a charging and discharging current detection section 3. The Examiner asserts this element corresponds with the claimed current measurement device. The charging and discharging current detection section 3 of Hasegawa has a current detection resistor 2, which the Examiner asserts corresponds with the claimed sense resistor. The current detection resistor 2 of Hasegawa can detect both charging current and discharging current with the aid of operational amplifiers 31 and 32. In summary, the Examiner believes that Hasegawa discloses a single resistor (current detection resistor 2) used to detect a charging current and a discharging current.

The sense resistor claimed in independent claim 19 functions to detect charging current and discharging currents. However, this is not necessarily the point of novelty of independent claim 19. It is known that a single resistor can function to detect charging current and discharging current. However, the sense resistor of independent claim 19 functions in three ways, not just two ways as in Hasegawa. Namely, the first function is to detect the charging current, the second function is to detect the charging current and the third function is to regulate to a constant current the current flowing into the rechargeable batteries.

It is important to note that for the following reasons constant current is not completely the same as the charging proceeds. The control circuit recited in claim 19 tries to feed a constant current to the batteries. At first, the constant current is exactly the same as the charging current. After this, as time goes on, the charging current reduces as the batteries become fully charged. The batteries are simply not able to accept as much current at this point. The constant current must decrease below the initially-set constant current value. The reduced charging current detected by the current measurement device is used by the system to reduce the constant current at this point.

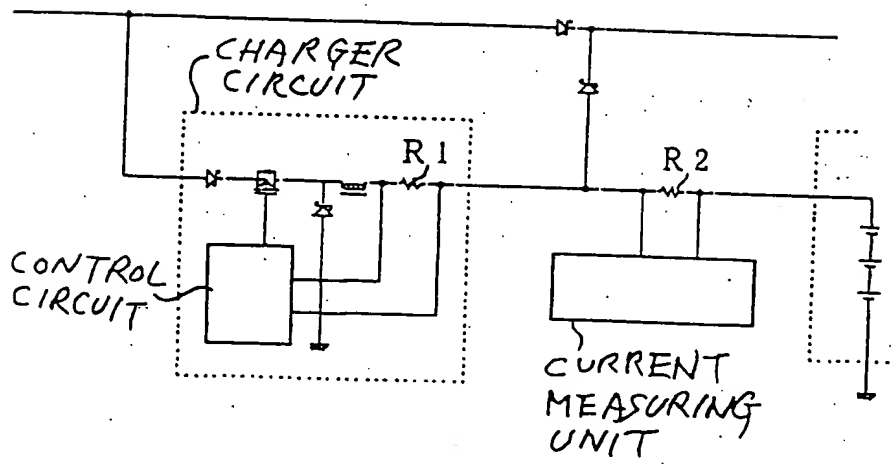
The device of Hasegawa is schematically illustrated below in Fig. A. As seen from the above Fig. A, Hasegawa discloses that a sense resistor "resistor" is used for measuring both the discharging current and the charging current.

Fig. A



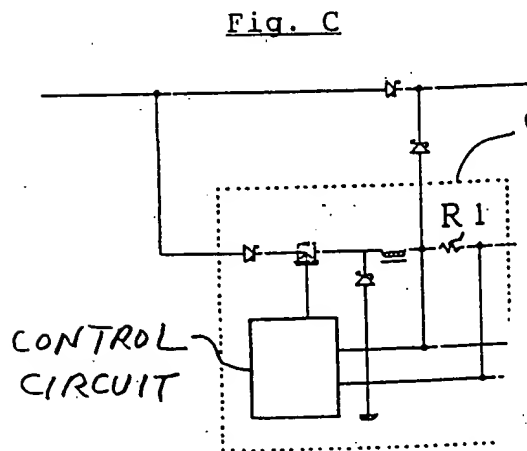
Another prior art system is shown below in Fig. B.

Fig. B



The device of Fig. B employs a resistor R2 for detecting charging current and discharging current. Therefore, resistor R2 and Fig. B is substantially the same as the "resistor" shown in Fig. A relating to Hasegawa. However, in Fig. B, a resistor R1 is used for sensing the constant current to operate the control circuit, both R1 and the control circuit being part of a charger circuit (system). It is important to note that Hasegawa does not disclose the Fig. B device with resistor R1.

As mentioned previously, the present invention does not require two resistors, but instead uses a single resistor R1 for both a control circuit and a current measurement device. Refer to the below Fig. C.



As can be seen in Fig. C, resistor R1 works to control the constant current for charging, to measure the charging current and to measure the discharging current.

In summary, Hasegawa does not disclose or suggest a single resistor associated with three functions, as claimed. Accordingly, it is submitted that claims 19 and 20 patentably distinguish over the reference.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that affect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY

By: Mark J. Henry
Mark J. Henry
Registration No. 36,162

700 Eleventh Street, NW
Suite 500
Washington, D.C. 20001
(202) 434-1500

Date: April 9, 1997

CERTIFICATE UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231

on April 9, 19 97
STAAS & HALSEY
By: Mark J. Henry
Date: 4-9-97

CLAIMS

1. A control system for charging in an electronic apparatus which charges its rechargeable batteries by using a charger circuit when driving the apparatus by using an external power source, including

a first detecting means for detecting a differential value between a maximum permissible charging current allowed by the rechargeable batteries and a charging current flowing to the rechargeable batteries;

a second detecting means for detecting a maximum usable current by detecting a differential value between a maximum supplyable current allowed by the external power source and the current consumption of the apparatus;

a third detecting means for detecting a differential value between a maximum useable current and the charging current flowing to the rechargeable batteries; and

a control means for controlling the system in accordance with the differential values detected by the first and third detecting means so that the charger circuit generates the maximum charging current within the range where the charging current flowing to the rechargeable batteries does not exceed either of the maximum permissible charging current and the maximum useable current.

2. A control system for charging as set forth in claim 1, wherein

provision is made of a fourth detecting means for detecting a differential value between the maximum permissible apply voltage allowed by said rechargeable batteries and voltage to be applied to said rechargeable batteries;

said control means performs control according to the differential values which are detected by the first, third, and fourth detecting means so that said charger circuit generates the maximum charging

current within a range where the charging current flowing to the rechargeable batteries does not exceed either of the maximum permissible charging current and the maximum useable current and the voltage to be applied to the rechargeable batteries does not exceed the maximum permissible supply voltage.

3. A control system for charging in an electronic apparatus which charges its rechargeable batteries by using a charger circuit when driving the apparatus by using an external power source, including

a first detecting means for detecting a differential value between a maximum permissible charging current allowed by the rechargeable batteries and a charging current flowing to the rechargeable batteries;

a second detecting means for detecting a maximum usable current by detecting a differential value between a maximum supplyable current allowed by the external power source and the output voltage which is output by said external power source; and

a control means for controlling according to the differential values which are detected by the first and second detecting means so that the charger circuit generates the maximum charging current within a range where the charging current flowing to the rechargeable batteries does not exceed the maximum permissible charging current and the output voltage to be output by the external power source is not lowered to less than the lowest permissible output voltage.

4. A control system for charging as set forth in claim 3, wherein

provision is made of a third detecting means for detecting a differential value between the maximum permissible supply voltage allowed by said rechargeable batteries and voltage to be supplied to said rechargeable batteries; and

said control means performs control according to the differential values detected by said

first, second, and third detecting means so that the charger circuit generates the maximum charging current within a range where the charging current flowing to the rechargeable batteries does not exceed the maximum
5 permissible charging current, the output voltage which is output by the external power source is not lowered to less than the lowest permissible output voltage, and the voltage to be supplied to the rechargeable batteries does not exceed the maximum permissible supply voltage.

10 5. A control system for charging as set forth in claim 1, wherein

said control means performs processing so as to control the charging current which is generated by said charger circuit so that the specified differential
15 value becomes zero by specifying the differential value most greatly exceeding the limit value when there are one or more differential values which are detected by said detecting means exceeding the limit value or specifying the differential value nearest zero when there is no
20 value exceeding the limit value.

6. A control system for charging as set forth in claim 2, wherein

said control means performs processing so as to control the charging current which is generated by
25 said charger circuit so that the specified differential value becomes zero by specifying the differential value most greatly exceeding the limit value when there are one or more differential values which are detected by said detecting means exceeding the limit value or specifying
30 the differential value nearest zero when there is no value exceeding the limit value.

7. A control system for charging as set forth in claim 3, wherein

said control means performs processing so as to control the charging current which is generated by
35 said charger circuit so that the specified differential value becomes zero by specifying the differential value

most greatly exceeding the limit value when there are one or more differential values which are detected by said detecting means exceeding the limit value or specifying the differential value nearest zero when there is no
5 value exceeding the limit value.

8. A control system for charging as set forth in claim 4, wherein

said control means performs processing so as to control the charging current which is generated by
10 said charger circuit so that the specified differential value becomes zero by specifying the differential value most greatly exceeding the limit value when there are one or more differential values which are detected by said
15 detecting means exceeding the limit value or specifying the differential value nearest zero when there is no value exceeding the limit value.

9. A control system for charging in an electronic apparatus which is provided with a charger circuit which generates a charging current in accordance with the
20 operating conditions of apparatus and charges rechargeable batteries possessed by the apparatus using the charging current generated by said charger circuit, provided with:

a detecting means for detecting the
25 charging current flowing to the rechargeable batteries;

an integrating means for integrating the charging current which is detected by the detecting means; and

an issuing means for deciding whether or
30 not the total value of the charging current integrated by the integrating means and the current capacity possessed by the rechargeable batteries at the time of the start of charging has reached the maximum current capacity of the rechargeable batteries and issuing a charging end command
35 to the charger circuit when deciding that it has reached the maximum current capacity of the rechargeable batteries.

10. A control system for charging in an electronic apparatus provided with rechargeable batteries supplying power to the power supply circuit of the apparatus and a charger circuit generating a constant current to be used
5 for the charging of said rechargeable batteries,

provided with a current measuring means which is provided with a sense resistor for detecting the charging current flowing to the rechargeable batteries on the rechargeable battery side from the connection point
10 of the power supply circuit and the charger circuit and uses the sense resistor to measure the discharging current from said rechargeable batteries and

receives as inputs the voltages of the two ends of the sense resistor, discriminates whichever of
15 these two input voltages is larger, and generates a voltage in accordance with the differential value between these two input voltages to detect the charging current and discharging current.

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DKT NO. 122.1203/MJN
DATE DUE 9-24-97 (1FVDC)
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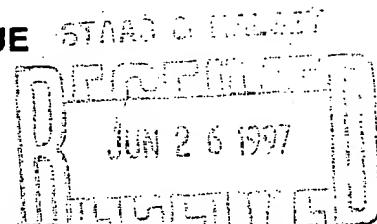
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WASHINGTON, D.C. 20231

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

21M1/06624

STAAS & HALSEY
700 ELEVENTH STREET NW
SUITE 500
WASHINGTON DC 20001



COPIES OF REFERENCES ORDERED

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/578,805	12/26/95	010	SHIN, K	2111 06/24/97
First Named Applicant	MATSUDA, KOUICHI			

TITLE OF INVENTION: CONTROL SYSTEM FOR CHARGING BATTERIES AND ELECTRONIC APPARATUS USING SAME

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
2 122.1203/HJS	320-045.000	051	UTILITY	NO	\$1290.00	09/24/97

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.
If the SMALL ENTITY is shown as yes, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B of this notice should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "6b" of Part B should be completed.

III. All communications regarding this application must give application number and batch number. Please direct all communication prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Notice of Allowability

Application No.

08/578,805

Applicant(s)

Matsuda et al

Examiner

K. Shin

Group Art Unit

2111



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to Amendment of 4/9/97

☒ The allowed claim(s) is/are 1-1-20

☐ The drawings filed on _____ are acceptable.

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____

☒ including changes required by the proposed drawing correction filed on Apr 9, 1997, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☒ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☐ Examiner's Statement of Reasons for Allowance

PETER S. WONG
SUPERVISORY PATENT EXAMINER
GROUP 2100

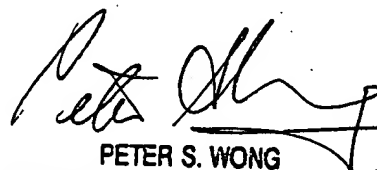
Art Unit:

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. The application has been amended as follows:
Cancel claims 1-10.
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner K. Shin whose telephone number is (703) 308-0711.

KCS

June 10, 1997


PETER S. WONG
SUPERVISORY PATENT EXAMINER
GROUP 2100

Notice of References Cited				Application No. 08/578,805		Applicant(s) Matsuda et al	
				Examiner K. Shin		Group Art Unit 2111	

U.S. PATENT DOCUMENTS						
*	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	
X	A	5,465,039	Narita et al	320	32	
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	S					
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	W	
	X	

* A copy of this reference is not being furnished with this Office action.
(See Manual of Patent Examining Procedure, Section 707.05(a).)